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*** YOU HAVE NEW MAIL ***

=> s oligo? (3a) synthesis
L1 37852 OLIGO? (3A) SYNTHESIS

=> s l1 and silylalkoxy?
L2 9 L1 AND SILYLALKOXY?

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3 9 DUP REM L2 (0 DUPLICATES REMOVED)

=> d l3 bib abs 1-9

L3 ANSWER 1 OF 9 USPATFULL on STN
AN 2004:83469 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, UNITED STATES
Cole, Douglas L., San Diego, CA, UNITED STATES
PA Isis Pharmaceuticals, Inc. (U.S. corporation)
PI US 2004063925 A1 20040401
AI US 2003-665822 A1 20030919 (10)
RLI Continuation of Ser. No. US 2002-269291, filed on 11 Oct 2002, GRANTED, Pat. No. US 6646114 Continuation of Ser. No. US 2001-824474, filed on 2 Apr 2001, GRANTED, Pat. No. US 6486312 Continuation of Ser. No. US 1999-395948, filed on 14 Sep 1999, GRANTED, Pat. No. US 6211350 Continuation of Ser. No. US 1996-692909, filed on 31 Jul 1996, GRANTED, Pat. No. US 6001982 Division of Ser. No. US 1994-249442, filed on 26 May 1994, GRANTED, Pat. No. US 5571902 Continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993, GRANTED, Pat. No. US 5614621
DT Utility
FS APPLICATION
LREP WOODCOCK WASHBURN LLP, ONE LIBERTY PLACE - 46TH FLOOR, PHILADELPHIA, PA, 19103
CLMN Number of Claims: 18
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 912
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase

synthesis of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure ##STR1##

are prepared in accord with preferred embodiments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 2 OF 9 USPATFULL on STN
AN 2003:100301 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, UNITED STATES
Cole, Douglas L., San Diego, CA, UNITED STATES
PI US 2003069412 A1 20030410
US 6646114 B2 20031111
AI US 2002-269291 A1 20021011 (10)
RLI Continuation of Ser. No. US 2001-824474, filed on 2 Apr 2001, GRANTED, Pat. No. US 6486312 Continuation of Ser. No. US 1999-395948, filed on 14 Sep 1999, GRANTED, Pat. No. US 6211350 Continuation of Ser. No. US 1996-692909, filed on 31 Jul 1996, GRANTED, Pat. No. US 6001982 Division of Ser. No. US 1994-249442, filed on 26 May 1994, GRANTED, Pat. No. US 5571902 Continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993, GRANTED, Pat. No. US 5614621
DT Utility
FS APPLICATION
LREP WOODCOCK WASHBURN LLP, ONE LIBERTY PLACE, 46TH FLOOR, 1650 MARKET STREET, PHILADELPHIA, PA, 19103
CLMN Number of Claims: 18
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 913
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase **synthesis** of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure ##STR1##

are prepared in accord with preferred embodiments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 3 OF 9 USPATFULL on STN
AN 2001:145371 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, United States
Cole, Douglas L., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc. (U.S. corporation)
PI US 2001018510 A1 20010830
US 6486312 B2 20021126
AI US 2001-824474 A1 20010402 (9)
RLI Continuation of Ser. No. US 1999-395948, filed on 14 Sep 1999, GRANTED, Pat. No. US 6211350 Continuation of Ser. No. US 1996-692909, filed on 31 Jul 1996, GRANTED, Pat. No. US 6001982 Division of Ser. No. US 1994-249442, filed on 26 May 1994, GRANTED, Pat. No. US 5571902 Continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993, GRANTED, Pat. No. US 5614621
DT Utility
FS APPLICATION
LREP Michael P. Straher, Woodcock Washburn Kurtz, Mackiewicz & Norris LLP, One Liberty Place - 46th Floor, Philadelphia, PA, 19103
CLMN Number of Claims: 18
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 912

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase **synthesis** of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure ##STR1##

are prepared in accord with preferred embodiments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 4 OF 9 USPATFULL on STN
AN 2001:163329 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, United States
Cole, Douglas L., San Diego, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6294664 B1 20010925
WO 9532980 19951207
AI US 1997-737875 19970117 (8)
WO 1995-US6825 19950526
19970117 PCT 371 date
19970117 PCT 102(e) date
RLI Continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993, now patented, Pat. No. US 5614621 Continuation-in-part of Ser. No. US 1994-249442, filed on 26 May 1994, now patented, Pat. No. US 5571902
DT Utility
FS GRANTED
EXNAM Primary Examiner: Wilson, James O.
LREP Woodcock Washburn Kurtz Mackiewicz & Norris LLP
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)
LN.CNT 1253
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase **synthesis** of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure (I) are prepared in accordance with preferred embodiments. ##STR1##

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 5 OF 9 USPATFULL on STN
AN 2001:48222 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, United States
Cole, Douglas L., San Diego, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6211350 B1 20010403
AI US 1999-395948 19990914 (9)
RLI Continuation of Ser. No. US 1996-692909, filed on 31 Jul 1996, now patented, Pat. No. US 6001982 Division of Ser. No. US 1994-249442, filed on 26 May 1994, now patented, Pat. No. US 5571902 Continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993, now patented, Pat. No. US 5614621
DT Utility
FS Granted
EXNAM Primary Examiner: Riley, Jezia
LREP Woodcock Washburn Kurtz Mackiewicz & Norris LLP
CLMN Number of Claims: 25
ECL Exemplary Claim: 1
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)

LN.CNT 1024
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase **synthesis** of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure ##STR1##

are prepared in accord with preferred embodiments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 6 OF 9 USPATFULL on STN
AN 1999:163837 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, United States
Cole, Douglas L., San Diego, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6001982 19991214
AI US 1996-692909 19960731 (8)
RLI Division of Ser. No. US 1994-249442, filed on 26 May 1994, now patented, Pat. No. US 5571902 which is a continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993, now patented, Pat. No. US 5614621
DT Utility
FS Granted
EXNAM Primary Examiner: Wilson, James O.
LREP Woodcock Washburn Kurtz Mackiewicz & Norris LLP
CLMN Number of Claims: 4
ECL Exemplary Claim: 1
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)
LN.CNT 924
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase **synthesis** of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure ##STR1## are prepared in accord with preferred embodiments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 7 OF 9 USPATFULL on STN
AN 96:101666 USPATFULL
TI **Synthesis** of **oligonucleotides**
IN Ravikumar, Vasulinga, Carlsbad, CA, United States
Cole, Douglas L., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 5571902 19961105
AI US 1994-249442 19940526 (8)
RLI Continuation-in-part of Ser. No. US 1993-99075, filed on 29 Jul 1993
DT Utility
FS Granted
EXNAM Primary Examiner: Wilson, James O.
LREP Woodcock Washburn Kurtz Mackiewicz & Norris
CLMN Number of Claims: 16
ECL Exemplary Claim: 1,13
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)
LN.CNT 955
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Synthetic processes are provided for the solution phase **synthesis** of **oligonucleotides**, especially phosphorothioate oligonucleotides, and intermediate compounds useful in the processes. Intermediates having structure ##STR1## are prepared in accord with preferred embodiments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 8 OF 9 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1996-030511 [03] WPIDS
CR 1995-090608 [12]
DNC C1996-010486
TI Solution phase **oligo**-nucleotide **synthesis** suitable for scale-up - using partic. nucleoside silyl-alkoxy-phosphoramidite for coupling with active phosphite mono unit, oxidation or thiation, and deprotection.
DC B03 B04 D16
IN COLE, D L; RAVIKUMAR, V
PA (ISIS-N) ISIS PHARM INC; (COLE-I) COLE D L; (RAVI-I) RAVIKUMAR V
CYC 63
PI WO 9532980 A1 19951207 (199603)* EN 55
RW: AM AT BE BY CH DE DK ES FR GB GR IE IT KE KG KZ LI LU MC MD MW NL PT RU SD SE TJ TM UG
W: AU BB BG BR CA CN CZ EE FI GE HU IS JP KP KR LK LR LT LV MG MN MX NO NZ PL RO SG SI SK TT UA US UZ VN
AU 9526570 A 19951221 (199612)
US 5571902 A 19961105 (199650) 16
EP 766688 A1 19970409 (199719) EN
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
US 6001982 A 19991214 (200005)
US 6211350 B1 20010403 (200120)
US 2001018510 A1 20010830 (200151)
US 6294664 B1 20010925 (200158)
US 6486312 B2 20021126 (200281)
US 2003069412 A1 20030410 (200327)
US 6646114 B2 20031111 (200382)
US 2004063925 A1 20040401 (200425)
ADT WO 9532980 A1 WO 1995-US6825 19950526; AU 9526570 A AU 1995-26570 19950526; US 5571902 A CIP of US 1993-99075 19930729, US 1994-249442 19940526; EP 766688 A1 EP 1995-921510 19950526, WO 1995-US6825 19950526; US 6001982 A CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, US 1996-692909 19960731; US 6211350 B1 CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, Cont of US 1996-692909 19960731, US 1999-395948 19990914; US 2001018510 A1 CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, Cont of US 1996-692909 19960731, Cont of US 1999-395948 19990914, US 2001-824474 20010402; US 6294664 B1 CIP of US 1993-99075 19930729, CIP of US 1994-249442 19940526, WO 1995-US6825 19950526, US 1997-737875 19970117; US 6486312 B2 CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, Cont of US 1996-692909 19960731, Cont of US 1999-395948 19990914, US 2001-824474 20010402; US 2003069412 A1 CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, Cont of US 1996-692909 19960731, Cont of US 1999-395948 19990914, Cont of US 2001-824474 20010402, US 2002-269291 20021011; US 6646114 B2 CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, Cont of US 1996-692909 19960731, Cont of US 1999-395948 19990914, Cont of US 2001-824474 20010402, US 2002-269291 20021011; US 2004063925 A1 CIP of US 1993-99075 19930729, Div ex US 1994-249442 19940526, Cont of US 1996-692909 19960731, Cont of US 1999-395948 19990914, Cont of US 2001-824474 20010402, Cont of US 2002-269291 20021011, US 2003-665822 20030919
FDT AU 9526570 A Based on WO 9532980; EP 766688 A1 Based on WO 9532980; US 6001982 A Div ex US 5571902, CIP of US 5614621; US 6211350 B1 Div ex US 5571902, CIP of US 5614621, Cont of US 6001982; US 2001018510 A1 Div ex US 5571902, CIP of US 5614621, Cont of US 6001982, Cont of US 6211350; US 6294664 B1 CIP of US 5571902, CIP of US 5614621, Based on WO 9532980; US 6486312 B2 Div ex US 5571902, CIP of US 5614621, Cont of US 6001982, Cont of US 6211350; US 2003069412 A1 Div ex US 5571902, CIP of US 5614621, Cont of US 6001982, Cont of US 6211350, Cont of US 6486312; US 6646114 B2 Div ex US 5571902, CIP of US 5614621, Cont of US 6001982, Cont of US 6211350,

Cont of US 6486312; US 2004063925 A1 Div ex US 5571902, CIP of US 5614621, Cont of US 6001982, Cont of US 6211350, Cont of US 6486312, Cont of US 6646114

PRAI US 1994-249442 19940526; US 1993-99075 19930729;
US 1996-692909 19960731; US 1999-395948 19990914;
US 2001-824474 20010402; US 1997-737875 19970117;
US 2002-269291 20021011; US 2003-665822 20030919

AN 1996-030511 [03] WPIDS

CR 1995-090608 [12]

AB WO 9532980 A UPAB: 20040418

Method for solution phase preparation of an oligonucleotide (ON) of formula (I),

comprising reaction of an ON minus 1 synthon of formula (II) with a mono-unit phosphite synthon of formula (III) is new.

Q = O, S, CH2, CHF or CF2; Bx = a nucleosidic base; X = OH, SH, SMe, F, OCN, O(CH2)mNH2, O(CH2)mMe, opt. substd. 1-10C alkyl, alkaryl, aralkyl, Cl, Br, CN, CF3, OCF3, alkoxy, alkylthio, alkylamino, alkenoxy, alkenylthio or alkenylamino, SOMe, SO2Me, ONO2, NO2, N3, amino, heterocycloalkyl, heterocycloalkaryl, aminoalkylamino, polyalkylamino, substd. silyl, an RNA cleaving gp., reporter gp., a conjugate, an intercalator, or a gp. for improving the pharmacodynamic or pharmacokinetic properties of an ON; m = 1-10; W = a 3' hydroxyl protecting gp.; Z = O or S; T = a phosphorus blocking gp.; Y = a 5' hydroxyl protecting gp.; U = a phosphite activating gp.; and n = 0-50.

Also new are: (A) the process as above, further comprising removal of gps. W,T, and Y from (I) and oxidation of the (I) to form phosphorothioate or phosphodiester inter-nucleoside bonds; (B) as (A), but further comprising transforming (I) into a synthon of type (II) for reaction with another synthon of type (III); (C) libraries comprising a number of the above cpds.

USE - ON's have well-known uses for diagnostic, therapeutic, research and other purposes in biotechnology and medicine. The subject matter of the patent is concerned solely with preparative methods. The ON can be synthesised either singly, or as a number to form, e.g. a library, by using a number of synthons in the reaction.

ADVANTAGE - As a solution method, the method avoids the disadvantages of solid supports, i.e. fragility and limited activated surface, resulting in limited anchoring of strands. The **silylalkoxy** gp. avoids the expense of the cyanoethyl analogue and problems resulting from subsequent fission of acrylonitrile, i.e. carcinogenicity and reactivity, e.g. by Michael reaction, to form unwanted by-prods. The method appears amenable to scale-up. Large excess of condensing base, usually a tetrazole derivative, is not needed.

Dwg.0/3

ABEQ US 5571902 A UPAB: 19961211

A method for the solution phase preparation of an oligonucleotide comprising reacting, in solution, a first synthon having the structure (I) with a second synthon having the structure (II) to form a moiety having the structure (III) where each Q is independently O or S; each Bx is independently a nucleosidic base; each X is independently, H, OH, F, O-alkyl, S-alkyl, N-alkyl, O-alkenyl, S-alkenyl or N-alkenyl; each Y is independently a 5' hydroxyl protecting group; W is a 3' hydroxyl protecting group; each Z is independently O or S; each T is independently -O-(CH2)xSiR3R4R5; R3, R4 and R5 are each independently alkyl or aryl; U is a phosphite activating group; n is an integer from 0 to 50; and x is 1 to about 7.

Dwg.0/3

L3 ANSWER 9 OF 9 USPATFULL on STN

AN 88:56129 USPATFULL

TI Thermosetting polysulfones

IN Fan, You-Ling, 3 Heritage Ct., East Brunswick, NJ, United States 08816

PI US 521 19880906

AI US 1987-4721 19870120 (7)

RLI Continuation of Ser. No. US 1985-775713, filed on 16 Sep 1985, now abandoned which is a continuation of Ser. No. US 1984-659509, filed on 11 Oct 1984, now abandoned which is a continuation of Ser. No. US 1983-563267, filed on 20 Dec 1983, now abandoned which is a continuation of Ser. No. US 1982-393768, filed on 20 Jun 1982, now abandoned
DT Statutory
FS Granted
EXNAM Primary Examiner: Terapane, John F.; Assistant Examiner: Thomas, J. E.
CLMN Number of Claims: 10
ECL Exemplary Claim: 1
DRWN 4 Drawing Figure(s); 2 Drawing Page(s)
LN.CNT 2909
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Class of high performance thermosetting materials composed of polyarylene polyether resins having each of their ends capped with a monovalent unsaturated organo radical. The end-capped polyarylene polyether resins have the formula:

Z--polyarylene polyether chain--Z'

wherein Z and Z' are each a monovalent unsaturated organo radical. Usually Z and Z' are alkylene, aralkylene or cycloalkylene moieties. The end-capped polyarylene polyethers can be cured as is or in the presence of one or more unsaturatd comonomers to afford homopolymers or copolymers, respectively. Such cured systems exhibit high glass transition temperatures, good tensile properties, excellent electric and alkali resistance and improved stress cracking resistance. End-terminated polysulfone resins having molecular weight of 5,000 to 15,000 are especially advantageous. The properties exhibited by the vinyl/allyl terminated oligomers are useful in fields which require high temperature performance, excellent solvent resistance and good fabrication characteristics. Specific areas of application include high performance molded products for appliances and electronics, high temperature laminates and adhesives and protective and insulative coatings.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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